

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

CC CIV 5601 Civil Action No.

ICOS Vision Systems Corporation N.V. and
ICOS Vision Systems Inc.,

Plaintiffs,

v.

Scanner Technologies Corporation,

Defendant.



For its Complaint in this action, plaintiffs ICOS Vision Systems Corporation N.V. and ICOS Vision Systems Inc. (collectively "ICOS"), through their undersigned attorneys, allege:

1. This is an action to redress Scanner's infringement upon ICOS' freedom to operate its computer chip inspection systems business, free from unlawful interference under color of invalid and inapplicable patent rights repeatedly asserted by Scanner against ICOS, its customers and their customers who use computer chips. ICOS' inspection pertains to a subset of the chip parameters.

2. An equipment supplier like ICOS is not required to sit idly by while its U.S. market is destroyed by predatory raids on its downstream customers who are handicapped to defend themselves properly as a matter of economics, and

who therefore are inclined to switch rather than fight. In the interest of judicial economy and based on Scanner's independent original election of forum in the first-filed case in 2000, New York is the forum where Scanner's claims have to be addressed and decided -- not in serial duplicative suits all over the country against and by a myriad of customers of customers of ICOS, for the sole purpose of hammering ICOS into submission. ICOS' present action needs to be expedited to provide immediate urgent relief to ICOS. The parties and this Court are already familiar with most of the underlying facts, except the new facts alleged herein that now give rise to a need for urgent relief.

3. Scanner's acts commenced with the filing of a patent infringement action in this Court. Then Scanner sent threatening letters to computer chip users.

4. ICOS seeks urgent aid of this Court by way of preliminary and permanent injunctive relief founded on a declaration that Scanner's patent portfolio (to the extent not already found invalid and not-infringed) is a fraud on the public and its charges of infringement are sham. Accordingly, due to Scanner's unclean hands it is disabled from pursuing any further enforcement of its portfolio, whether against ICOS, its customers, or their customers downstream. Such urgent relief is needed since without it, ICOS' valuable inspection equipment business built up over many years stands to be impaired or destroyed. The resulting damages will be substantial but difficult to calculate, so monetary relief will be inadequate as redress. It is unlikely that Scanner possesses sufficient assets to make good on a money judgment of a magnitude

that might approach the extent of the damage it wishes to impose on ICOS.

5. Two of Scanner's patents in its family of patents have already been held invalid and not infringed. See Federal Circuit Opinion of June 19, 2008 (Ex. A hereto).

6. Since the rest of Scanner's family derived from the same patent disclosure, the Federal Circuit's reasoning indicates that these patents, as well, have little likelihood of being found valid or infringed.

7. The Federal Circuit has held that ICOS does not infringe Scanner's first two patents in that they disclose and claim triangulation as a calculation method; whereas ICOS uses bilinear interpolation. Since all Scanner's patents are based on the same parent specification disclosing triangulation, any later claims that Scanner may have procured directed to other methods, exceed the scope of its disclosure and are invalid and/or not infringed; especially since bilinear interpolation was already used by ICOS before Scanner's earliest alleged invention date and filing date. Indeed to the extent Scanner may have copied ICOS' methods and inserted them into Scanner's later-procured claims, Scanner concealed the derivation of its alleged later "inventions". Delaying prosecution and issuance of patent claims to keep an "iron in the fire" from which belatedly to procure new claims that purport to cover industry trends is an abuse of the patent system. *Symbol Technologies, Inc. v. Lemelson Medical, Education and Research Foundation*, 422 F.3d 1378 (Fed. Cir. 2005).

8. Scanner's latest patents, at issue in its dispute with NVIDIA, exemplify the extent to which Scanner has lost all compass in its grudge against ICOS. Those patents go so far as to claim rights to the chips themselves, even though such chips were known and used in the United States (and elsewhere) long before Scanner's earliest alleged invention date and filing date. Scanner has in those patents procured *inter alia* claims to the chips as "product by process". However, under controlling law a product by process claim is invalid if the resulting product was in the prior art. It is beyond dispute that chips having properly-aligned solder balls were known and used in the U.S. (and elsewhere) long before Scanner's earliest alleged invention date and filing date. Hence Scanner's newest patents are invalid beyond dispute as a matter of law. *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1318 (Fed. Cir. 2006).

9. Moreover, those latest patents practice a ruse in which Scanner attempts to invoke -- improperly -- the benefits of Section 271(g) of the Patent Act. Scanner has drawn claims to a "produced chip" allegedly made by its process. However, those claims are no more than wordplay on the meaning of "produced", in which Scanner seeks to foist off its assertion that a chip is not "produced" until after it has been inspected and approved. Such Alice-in-Wonderland claims cannot be infringed by anyone since it is a fact of common, obvious and undeniable knowledge -- indeed a tautology -- that any item is produced when it is produced, not some time thereafter. *Brown v. Piper*, 91 U.S.

37, 43 (1875). Inspection of produced chips does not change their physical or chemical structure. Mental steps such as diagnosis, inspection and approval do not alter physical or chemical structure, do not "produce" tangible items under the relevant case law, and so cannot infringe under Section 271(g). *Bayer AG et al. v. Housey Pharmaceuticals, Inc.*, 340 F.3d 1367, 1377 (Fed. Cir. 2003). As a result of Scanner's misconduct, ICOS stands to lose not only NVIDIA's business, but other business that NVIDIA's inspection suppliers conduct using ICOS equipment.

PARTIES AND JURISDICTION

10. Plaintiff ICOS Vision Systems Corporation N.V. is a wholly owned subsidiary of KLA-Tencor Corporation, a Delaware corporation. ICOS is organized and existing under the laws of Belgium, with offices at Esparantolaan 8, 3001 Heverlee, Belgium. Plaintiff ICOS Vision Systems, Inc., is a KLA-Tencor subsidiary organized and existing under the laws of the State of Delaware with a principal place of business at Three Lagoon Drive, Suite 160, Redwood City, CA 94065.

11. Upon information and belief, defendant Scanner Technologies Corporation ("Scanner") is a corporation organized and existing under the laws of the State of New Mexico, with a principal place of business at 14505 21st Avenue North, Minneapolis, MN 55447.

12. On information and belief, Scanner purports to be the assignee of these U.S. patents:

Patent No.	Title	Filed	Issued
7,085,411 ("411 patent")	Method of Manufacturing Electronic Components Including a Method for Three Dimensional Inspection	2/28/05	8/1/06
7,079,678 ("678 patent")	Electronic Component Products Made According to a Process that Includes a Method for Three Dimensional Inspection	2/28/05	7/18/06
6,915,006 ("006 patent")	Method and Apparatus for Three Dimensional Inspection of Electronic Components	4/27/01	7/5/05
6,915,007 ("007 patent")	Method and Apparatus for Three Dimensional Inspection of Electronic Components	4/27/01	7/5/05
6,862,365 ("365 patent")	Method and Apparatus for Three Dimensional Inspection of Electronic Components	7/13/99	3/1/05
6,064,757 ("757 patent")	Process for Three Dimensional Inspection of Electronic Components	5/28/99	5/16/00
6,064,756 ("756 patent")	Apparatus for Three Dimensional Inspection of Electronic Components	5/28/99	5/16/00
6,072,898 ("898 patent")	Method and Apparatus for Three Dimensional Inspection of Electronic Components	1/16/98	6/6/00
5,574,668 ("668 patent")	Apparatus and Method for Measuring Ball Grid Arrays	2/22/95	11/12/96
5,173,796 ("796 patent")	Three Dimensional Scanning System	5/20/91	12/22/92

The patents listed above will be referred collectively as the "Scanner Patents".

13. This is a civil action arising under the Declaratory Judgments Act, 28 U.S.C. §§2201 and 2202. This action arises under the patent laws of the United States, in particular, 35 U.S.C. §§102, 103, 112 and 271. The action includes tort claims under the doctrine of pendent jurisdiction.

14. The Court has jurisdiction over the subject matter of this action under 28 U.S.C. §1331, 28 U.S.C. §§1338(a)-(b), and 28 U.S.C. §1367.

15. Venue is proper in this judicial district under 28 U.S.C. §§1391(b), (c)-(d).

FACTS COMMON TO ALL COUNTS

ICOS Automated Inspection Systems

16. ICOS develops automated systems for inspection of electronic components.

17. ICOS has customers located in the United States who use the ICOS systems in the U.S.; and who import into the U.S. items that have been scanned by ICOS systems, and wish to continue to do so. ICOS also has customers located abroad, who use ICOS systems.

Controversy Between the Parties

18. In 2000, Scanner initiated a suit in this district against ICOS, which went to trial (*Scanner Technologies Corporation v. ICOS Visions Systems Corporation N.V.*, SDNY 00 CV 4992 (DC)) (the "2000 New York Action").

19. In 2005, ICOS instituted suit in this district against Scanner (*ICOS Vision Systems Corporation N.V. et. al v. Scanner Technologies Corporation*, SDNY 05 CV 6322 (DC)) (the "2005 New York Action").

20. Scanner has directly and indirectly alleged to ICOS customers that ICOS systems infringe Scanner patents and that Scanner would be filing a suit against ICOS and its customers as well. Specific patents were mentioned,

including the '365 patent.

21. In December 2006, ICOS entered into a stipulation with Scanner to narrow the issues in the 2005 New York Action. The parties intended the stipulation to focus resolution of the parties' controversy and limit expenditure of resources for the parties and the Court.

22. Nevertheless, Scanner continued to prosecute and participate in ancillary customer suits in Texas (*Scanner Technologies Corporation v. NVIDIA Corporation*, EDDTX 06 CV 0205) (the "Texas Action") and California (*American Arium v. Scanner Technologies Corporation*, CDCA 05 CV 0673) (the "California Action").

23. Cumulatively, in the 2000 and 2005 New York Actions, Defendant Scanner has already asserted that ICOS systems infringe the '756 Patent, the '757 Patent, the '365 Patent, the '006 Patent, the '007 Patent and/or the '898 Patent. In the suit in Texas, Scanner asserted that ICOS systems infringe the '678 and '411 Patents (which are children of the same original application filed in 1998, issued as the '898 Patent, the '756 Patent and the '757 Patent). Also, in California, another downstream customer of ICOS' customer was forced under Scanner's pressure to seek declaratory judgment against Scanner's '757, '898 and '365 Patents.

24. In the 2000 New York Action, Scanner President and Chief Executive Officer, Elwin Beaty, testified at deposition that he advised ICOS that "Scanner Technologies would take whatever actions are allowed under the law to

protect our intellectual property." Scanner Vice President, David Mork, further testified at trial in that related action that Mr. Beaty communicated to ICOS that "in no uncertain terms we will vigorously defend our intellectual property." In that related action, Scanner brought suit against ICOS in New York with no advance warning and with no written notice of the Scanner patents involved in that action.

25. Scanner's incremental litigation activity has placed ICOS in reasonable apprehension that it will be sued for alleged infringement of most or all of the Scanner Patents (as well as further ones that may issue at any time) and that Scanner will continue to sue customers, interfering with ICOS' business and prospective advantage, unless Scanner is prevented by this Court. Scanner's customer suits have also put ICOS in reasonable apprehension of being sued by Scanner. In the Texas Action, Scanner's infringement contentions served January 29, 2007, repeatedly named ICOS as the supplier of the alleged infringing products to defendant NVIDIA.

26. Therefore, there exists a substantial and continuing case and controversy between ICOS and Scanner as to the infringement and validity of the Scanner patents.

27. As will be shown in detail herein, each and every one of Scanner's threats and charges is objectively baseless. Scanner's series of repetitive baseless claims is an indicator of sham litigation. *Professional Real Estate Investors, Inc., v. Columbia Pictures* (91-1043), 508 U.S. 49 (1993). Hence, the threats and claims considered in their totality as a series now mandate an

injunction to stop Scanner from further interfering with ICOS' business and prospective advantage.

Scanner's Patent Prosecution

28. Scanner's patent portfolio is a prime example of a proliferating trend of patent applicants' scheming to cultivate patent thickets to enrich themselves through sham litigation at the expense of the trade and consuming public, with consequent waste of Patent Office and Court resources.

29. Over time, Scanner has amassed the appalling total of 650 claims in 8 consecutive patents claiming priority from the same original specification filed in 1998 (Plaintiff Scanner Technologies' Disclosure of Asserted Claims and Infringement Contentions, p. 43 (Texas Action)). It is an undue burden even for those skilled in the art efficiently to navigate such a maze, let alone ordinary citizens. Scanner's claims repeatedly blend prior art and (alleged) inventive elements so as to blur the distinction, attempting to obtain patent protection for non-novel and/or obvious subject matter. Furthermore, 650 claims is only the number of Scanner's granted claims left after prosecuting a host of other claims, amendments, abandoned applications, and rejections. Scanner's modus operandi cripples the Patent Office's ability to conduct meaningful patent examination and burdens the Court with impossible claim construction tasks, to the public's detriment and to the impairment of technological progress.

30. Patent applicants like Scanner have a duty of candor to the Patent Office and the public. That duty includes not only disclosure of the prior art, but

also the *particular* and *distinct* disclosure of what the applicant considers to be the invention:

"The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 USC Sec. 112.

In disregard of that requirement, Scanner evidenced a conscious strategy to waste the examiner's time in an attempt to wear him or her down by attrition by knowingly submitting innumerable claims that have no patentably-material distinction from each other and by asserting filing dates of earlier applications in a complex web of continuations and continuations in part for claims derived from others. Scanner knew the alleged inventors did not have possession of the later-claimed alleged inventions when the earlier applications were filed, yet Scanner claimed the benefit of the filing dates of earlier applications that do not support the newly-claimed material. By foisting upon the Patent Office an overly burdensome searching and examination job, and given the limited time allotted for each prosecution, an unscrupulous applicant intends to distract the patent examiner from being able to focus the search and examination on determinative issues. Hence, the intended and likely result is the hurried issuance of invalid claims.

31. The 650 claims asserted in the Scanner Patents give rise to a dense thicket. Scanner's intensifying efforts to confuse and distract the Patent Office and the court system by overburdening the examiner and multiple judges around the country with frivolous and duplicative claims is evidenced by the increasing number of claims it solicits over time, as shown in the table below:

Issue Date	Patent No.	No. of Claims
8/1/2006	7,085,411	126
7/18/2006	7,079,678	126
7/5/2005	6,915,007	105
7/5/2005	6,915,006	147
3/1/2005	6,862,365	45
6/6/2000	6,072,898	41
5/16/2000	6,064,757	30
5/16/2000	6,064,756	30
	Claims Total	650

Indeed, many of the claims were admittedly copied from ICOS, not even invented by Scanner itself, and are in the prior art. Scanner and its patent attorneys were in possession of three envelopes of secret ICOS' documents. Scanner hired two of ICOS' key technical employees. Unlawfully, through a former ICOS manager, Scanner gained access to a large quantity of confidential materials and information about ICOS systems. Scanner helped itself to their contents from their possession in preparing its patent applications.

32. Scanner's patent claims have been deceptively worded to confuse the patent examiner (and the public and the courts) to procure claim allowance on a pretense of narrow scope, followed by abusive assertion of wide scope in later litigation. *White v. Dubar*, 119 U.S. 47, 51; 7 S.Ct. 72, 74 (1886) (a patent claim is not a "nose of wax," which may be twisted one way to procure its issuance and another way to ensnare defendants in court). Scanner expressly misled the patent examiner concerning the scope of its claims, e.g., making representations to the patent examiner that it directly contradicted by its infringement contentions in the Texas Action. Scanner told the patent examiner

that all the claims of its '678 Patent and '411 Patent covered systems with one camera, but it had the temerity to twist those claims like a nose of wax to assert they are infringed by ICOS systems having two cameras (Scanner's '411 Patent, Petition to Make Special, p. 3-4; Scanner's '678 Patent Petition to Make Special, pp. 3-4, and Supplemental to Petition to Make Special, e.g., p. 4; compare Plaintiff Scanner Technologies' Disclosure of Asserted Claims and Infringement Contentions, e.g., pp. 5, 12, 15 and 18 (Texas Action)).

33. Scanner's behavior as a claim drafter exceeds any reasonable bounds under the doctrine of "patentee as his or her own lexicographer". For example, Scanner demonstrated no attempt to offer a clear definition of what is or is not a BGA (Ball Grid Array).

34. Scanner referred to BGA(s) in a manner that intentionally blurs the distinction from other types of electronic chips so that it is no longer clear what is claimed. A BGA (Ball Grid Array) would reasonably be expected to use balls. But to the contrary, Scanner procured issuance of patent claims that read on BGAs but also contain limitations to pins and pads (e.g., the '365 Patent, Claims 23-24). Hence, Scanner purports to claim a BGA that is not a BGA. It sows confusion to mislead the Patent Office, the public and the Court about the scope of the resulting patent grant. It seeks to capitalize on such confusion by multiplying litigation, and hence litigation costs. Scanner seeks to create value for itself through the uncertainty its patent thicket wrongfully and intentionally imposes on the public.

35. In Scanner's patents, not only the term BGA is misleadingly defined, but also claims are directed to a "plane" having x, y, and z axes (i.e., "three-dimensional") (the '007 Patent, Claims 2-4). But a "plane" is "flat" by definition -- it cannot be curved, or have three dimensions. Scanner claims a "plane" that is not a plane. Why? Because ICOS does not use a pre-calculated plane of the type Scanner actually disclosed, so Scanner plays with the meaning of "plane" to seek undue advantage. As a result, Scanner imposes an increasingly unfair burden on the public to determine what comes under its patents and what does not. Such intentional lack of clarity in combination with the sheer number of claims render Scanner's patents invalid for indefiniteness under Section 112 of the Patent Act.

Scanner's Pursuit of the Industry

36. Scanner has pursued a plan to harass the industry by customer suits based on invalid patents.

37. In the 2000 New York Action, the Federal Circuit has upheld this court's judgment that the patents there in suit were both invalid and not infringed (Ex. A hereto).

38. Absent the Court's prompt intervention, ICOS stands to suffer immediate and irreparable injury, due to Scanner's resumption of intentional tortious interference with ICOS' business and prospective advantage by baseless suits and threats and by intentional mis-statements.

39. Scanner may shift the focus of its bad attention from ICOS, to ICOS' customers and their customers, in order to exploit the economics of litigation. ICOS as an equipment provider has a strong interest vigorously to defend. But customers and even more remote downstream customers of customers do not have the same interests at stake. For them it is easier to pay Scanner than to mount a defense, since as a practical matter they do not "have a dog in the hunt". They can pay up for the past, and switch to alternate inspection systems in the future. To tolerate Scanner's proceeding by way of customer threats and suits, when the issues in dispute were already joined between the main parties before this Court, so that this Court is familiar with the technology and the parties, violates tenets for efficient resolution of disputes by focusing on the real issues between the real parties in interest. It wastes the time and resources of the Court system and frustrates justice by imposing litigation costs on customers least able to bear them.

40. Scanner's drafting of new claims to play word games rather than advance scientific progress draws upon Tinker Belle's premise that if you think hard enough, you can fly. If no conceivable scientific test can tell if a particular product was "made" by a patented process, then the process is not a process of manufacture but rather a business method, mental model, or the like. *Bayer AG et al. v. Housey Pharmaceuticals, Inc.*, 340 F.3d at 1377 (Fed. Cir.2003). If the trier of fact showed two BGAs to the most knowledgeable BGA expert in the world, and asked which was "made by Scanner's patented process", the expert would be unable to tell by any scientific test -- since *shining light on a BGA*

leaves no mark. Hence, it has no effect on the BGA.

41. Since inspection of a BGA makes no chemical or physical change in it, it is impossible for a downstream customer to know if he or she has "infringing" product or not. Scanner is on a snipe hunt, and the Court is not obliged to play along, even if the Patent Office did. The Court's own computer or calculator may have BGA(s) that were inspected by ICOS systems, since there is no way for the downstream customer to know.

42. An equipment supplier like ICOS is not required to sit idly by while its U.S. market is destroyed by predatory raids on its downstream customers who are handicapped to defend themselves properly as a matter of economics, and who therefore are inclined to switch rather than fight.

43. In the interest of judicial economy and based on Scanner's independent original election of forum in the first-filed case in 2000, New York is the forum where Scanner's claims have to be addressed and decided – not in serial duplicative suits all over the country against and by a myriad of customers of customers of ICOS, for the sole purpose of hammering ICOS into submission.

William Gluckin & Co. v. International Playtex Corp., 407 F.2d 177 (2d Cir. 1969).

44. ICOS' present action needs to be *expedited* to provide immediate urgent relief to ICOS. The parties and this Court are already familiar with most of the underlying facts, except the new facts alleged herein that now give rise to a need for urgent relief.

Invalidity

45. Scanner's patents are invalid for reasons including (without limitation) those set forth below.

46. A key object and purpose of what Scanner *originally said* was its alleged invention was to overcome the defects of prior art illumination arrangements, such as focused laser light, in order to avoid "specular reflection" that Scanner expressly stated would degrade performance:

"Prior art three dimensional inspection systems have involved laser range finding technology, moire interferometry, structured light patterns or two cameras. The laser range finding method directs a focused laser beam onto the Ball Grid Array, BGA, and detects the reflected beam with a sensor. Elements of the BGA are determined in the X, Y and Z dimensions utilizing a triangulation method. This method requires a large number of measurement samples to determine the dimensions of the BGA resulting in longer inspection times. This method also suffers from specular reflections from the smooth surfaces of the solder balls resulting in erroneous data (E.g., the '898 Patent, Col. 1, Lines 23-34) (emphasis added).

Scanner, being in possession of information about LEDs for illumination and the exact positioning of such illumination with respect to the BGA being measured and the cameras used, by failing to disclose such information in full candor and detail, withheld from the public the very type of information that it considered to distinguish its alleged invention from what had gone before. Such failure cannot be excused as it goes to the very heart of the patent system: to reward the inventor for teaching the public how to improve on the known prior art.

47. Hence, Scanner's patents not already held invalid, are invalid in view of Scanner's violation of the "best mode" disclosure requirement by admittedly not disclosing to the Patent Office the "preferred light source" (LEDs) to effect illumination in the claimed apparatus and process. At trial in the 2000 New York Action, Inventor Beaty testified that he intentionally chose not to disclose the best mode of the claimed illumination because it was "immaterial" (Trial Tr. 175:15-17 (Beaty Cross)). As Beaty put it:

"We didn't put a limitation in this patent because we did not need to. There was not prior art that required us to have such a limitation to evade the prior art" (Trial Tr. 175:19-21 (Beaty Cross)).

But evasion is not invention: Beaty cannot use an excuse to evade his uncompromising duty to disclose the best mode of what he says he invented. In fact, on a previous appeal, the Federal Circuit confirmed the defect in Scanner's specification when it noted that the Beaty patent specification "does not describe or depict any illumination source." *Scanner Technologies Corp. v. ICOS Vision Systems Corp.*, 365 F.3d 1299, 1305 (Fed. Cir. 2004) (emphasis in original).

48. The best source of illumination (LEDs) is not the only element that Scanner intentionally withheld from disclosure. Scanner also did not make any proper disclosure of the relative placement of the lighting elements and cameras with respect to the parts to inspect.

49. Scanner's reasoning that it needed no disclosure of the illumination best mode because it deemed mathematical formulas to be its real invention, is

hopelessly flawed under basic principles of patentability pursuant to the U.S. Patent Act. First, Scanner cannot define the invention in one way in the claims but then characterize the invention as something else to avoid the requirements of the statute. Secondly, what Scanner now says was the alleged invention -- mathematical principles -- are non-patentable subject matter under Section 101. *Bayer AG et al. v. Housey Pharmaceuticals, Inc.*, 340 F.3d at 1377 (Fed. Cir. 2003). And in any event, the mathematical principles of triangulation disclosed in the Scanner Patents were long ago anticipated by ancient Greek mathematicians, and applied by the Italian scientist Galileo. No one can patent the math needed for measuring things, whether in surveying land, aerial photography, or chip inspection. Any such patent is invalid under Section 102 and/or Section 103 of the Patent Act, as held by the Federal Circuit with respect to Scanner's first two patents (Ex. A hereto).

50. Scanner's patents are also invalid due to inoperability of the newly claimed devices and processes. For example, Scanner is hopelessly contradictorily claiming a plane (i.e., a "flat" surface) that has a Z axis (i.e., is three-dimensional) (e.g., the '007 Patent, Claims 2-4); or a BGA that has no balls (the '365 Patent, Claims 23-24).

51. In furtherance of this same improper prosecution strategy, Scanner's new patent claims mis-define "manufacturing" as comprising an inoperable 2-step process: "making a three dimensional inspection of a lead on a BGA" and "selecting the BGA" (the '411 Patent, Claim 1):

"1. A method of manufacturing a ball grid array (BGA) device, the method comprising: making a three dimensional inspection of a lead on a BGA device; and selecting the BGA device as a produced BGA device based upon the results of the three dimensional inspection; wherein . . . "

You cannot inspect anything until you have first made it. Inspecting and selecting a BGA's lead does not make a BGA, it had to have been made already or there would be nothing to inspect. As a way to "manufacture" something, Scanner's method makes *nothing*. Hence, it is invalid for inoperability (like "perpetual motion" or "cold fusion").

52. Moreover, the Scanner patents are invalid for anticipation and/or obviousness (Sections 102-103 of the Patent Act). Scanner continually re-writes its patent claims overextending its priority specification to mis-appropriate industry trends, or to work around developments in the law. That is what it did in filing its new '411 and '678 patents, claiming that "manufacturing" includes inspection; and that a BGA is not only a BGA, after all. Scanner's first two litigated patents have already been invalidated for obviousness (Ex. A hereto).

53. Scanner's claims are anticipated or at least obvious in view of the prior art, including without limitation Kratzer Patent Publication No. WO 95/21376 of August 10, 1995 (long predating Scanner's earliest alleged invention date of "mid-1997").

54. Scanner's new patents are also invalid as a matter of law since the product claimed by process in the new patents (a "produced" BGA) was in the prior art (and Scanner knew it). *SmithKline Beecham Corp. v. Apotex Corp.*, 439

F.3d at 1318 (Fed. Cir. 2006).

55. There exists intervening invalidating prior art between the date of Scanner's parent application, and its subsequent applications. Such art may include ICOS' own products, at least based upon the manner in which Scanner has attempted to construe its patent claims. Moreover, Scanner's disclosure and teachings were encompassed in Komatsu Japanese Publication No. HEI9-304030 filed May 20, 1996 and published November 28, 1997 (the "Komatsu Publication"). Discovery likely will show that inspection machines operating under the Komatsu Publication were sold, offered for sale or imported into the United States even before Scanner's earliest alleged invention date of "mid-1997"; and/or that chips processed by Komatsu machines were imported into the United States before Scanner's earliest alleged invention date of "mid-1997". *Peters v. Active Mfg.*, 129 U.S. 530, 537 (1889) ("[t]hat which infringes, if later, would anticipate if earlier"). But even if not, the Komatsu Publication anticipates all new matter in Scanner patents not already held invalid.

56. Moreover, Scanner's new patents are invalid since Scanner did nothing more than unduly multiply claims by presenting alleged combinations which distinguish from its already-invalidated patents only by including elements that are old in the art and perform no new function. See *Ex Parte Whitelaw*, 219 O.G. 1237, 1238 (Comm'r Pat. 1914). Scanner's new claims essentially combine some prior art elements with Scanner's own previous (invalid) claims, and as a result its new claims do not substantively differ from its old claims as to overcome *Whitehall*. *Ex Parte Kochan*, 131 U.S.P.Q. 204, 206 (Bd. App. 1961);

MPEP §2173.05(n) Multiplicity [R-2]). The result is invalidity for failure to point out and distinctly claim the alleged invention. Section 112 of the Patent Act.

Unenforceability

57. Scanner's patents not already ruled invalid, are unenforceable for reasons including (without limitation) those set forth below.

58. Scanner's violation of a patent applicant's duty of candor renders said Scanner Patents unenforceable. Scanner's first two granted patents (the '756 and '757 patents) could be saved from unenforceability only by the Federal Circuit's application of an ad hoc formulation of a so-called "Akron Rule" giving Scanner the benefit of all doubt. Ex. A, pp. 14-15.

59. However, the devious behavior practiced by Scanner in its first petition to make special, was intensified beyond all doubt in its subsequent petitions filed in 2005 (the '411 Patent and '678 Patent). For example, Scanner represented to the Patent Office that all the claims of its '411 Patent are directed to a single invention. As a representative claim to support its petition Scanner stated that Claim 1 requires use of a *single* camera (pp. 3-4). But at the same time, Scanner deceptively solicited other claims (e.g., claim 66 of the '411 Patent, asserted in the Texas Action) requiring only "**at least one** sensor" (i.e., reading on more than one). Scanner focused the examiner's attention on extensive discussions distinguishing its "single camera" claims from the prior art, hoping that its broader claims would go unnoticed. And they did. In prosecution of the '678 Patent, Scanner submitted a supplemental petition to make special

but *never retracted its erroneous assertion*. Scanner had the Examiner confused into thinking the patent covered only one camera; and now it hopes it has ICOS' customers confused into thinking that it is entitled to a scope of invention that includes more than one camera, in a claim like claim 66. But it is not so entitled: the public is entitled to rely on Scanner's unretracted assertion made in its first petition. Scanner is estopped by its own characterization of its claims in its petition to make special, from asserting that any of those claims encompass more than one camera. Scanner further misrepresented the limitations of Claim 1 as requiring that the BGA device be permanently fixed in place, when in fact the claim requires only that the *optical elements* be fixed; and Scanner misrepresented the Bartulovic prior art patent as not anticipating that claim since it teaches that inspection "may" be performed on moving components (or by moving the camera). That components "may" be moving, hardly means either that the components *have* to be moving, or that the separate *optical elements viewing them* are not fixed. While ordinarily the examiner may independently review such assertions about the prior art, in the unusual context of a "petition to make special" -- in which the applicant seeks fast action by the patent examiner -- the applicant bears a heightened duty to make a search and evaluate the prior art fair and square, a duty violated by Scanner repeatedly.

60. Moreover, in that same submission Scanner misleadingly distinguished the prior art Roy patent by claiming that since it teaches taking images of the BGA "sequentially", it cannot anticipate Claim 1's requirement of taking bottom and side views of the BGA using a single camera. However,

nothing in Scanner's Claim 1 mentions the *timing* of taking those images, only that they should be taken by a single camera. Again, Scanner violated its duty of candor to the Patent Office, preferring to "bend the nose of wax" by mischaracterizing the content of its claims vis a vis the prior art. *White v. Dubar*, 119 U.S. at 51; 7 S.Ct. at 74 (1886).

61. Not only triangulation, but also Scanner's claims reading on a Z plane to determine a Z position (height) in world view frame of reference and pre-calculating that reference plane were elements of the original specification that cannot later be disregarded, without adding new matter that is unsupported by the claimed priority. Scanner added new elements by deriving them from others, not by its own invention. Scanner did not so inform the Patent Office. Such false claims of inventive priority, and concealment of derivation from others, constitute inequitable conduct giving rise to unenforceability.

62. By stretching its parent specification through protracted serial patenting over the years blending prior art with third-party practices, Scanner ends up with unenforceable patents under the doctrine of "prosecution laches". Scanner delayed unreasonably in prosecuting its newly-procured patent claims asserted in the Texas action, rendering its patents unenforceable against ICOS which has been prejudiced by Plaintiff's delay. *Symbol Technologies, Inc. v. Lemelson Medical, Education and Research Foundation*, 422 F.3d 1378 (Fed. Cir.2005).

63. Even more perniciously than *Lemelson*, Scanner exceeds "culpable

neglect" in prosecution of its patent applications. Scanner is intentionally and in bad faith inflicting adverse effects on businesses that are unable to determine what is patented from what is not patented. Hence, the Scanner patents are unenforceable. *Id.* at 1386.

Non-infringement

64. ICOS does not infringe any of the Scanner Patents, for reasons including (without limitation) those set forth below.

65. Since Scanner's patents are invalid, they cannot be infringed.

66. Moreover, even were the patents valid, ICOS does not infringe since ICOS does not practice "triangulation". Scanner's patent claims as interpreted by this Court (and upheld on appeal; see Ex. A) require triangulation, not bilinear interpolation. In the 2000 New York Action, Scanner admitted that ICOS does not infringe Scanner's triangulation claim when it admitted that the ICOS system uses "bilinear interpolation" to accurately determine positions of ball height during BGA inspection. Scanner stated on the record:

"The CyberSTEREO method described in ICOS PCT application accurately determines positions using bilinear interpolation: By using an appropriate interpolation technique, such as explained with reference to the calibration process, it is possible to compute the position of the templates with an accuracy up to 1/10 of a pixel." (Plaintiff's Rebuttal To Defendant's Proposed Findings of Fact And Conclusions of Law, p. 23, par. 97).

67. Even were Scanner to argue that its new "manufacturing" patent claims as in its most recently-obtained '411 patent do not require triangulation,

ICOS does not infringe them either, since inspection of a chip cannot reasonably be interpreted as "manufacturing" a "produced BGA". Neither ICOS nor its customers and downstream customers can infringe such inoperable claims as a matter of law, since they *make* their BGA chips *before* they inspect them -- indeed, it cannot be done otherwise except in Scanner's imagination.

68. Scanner itself acknowledged in its filed 10K 2005 Report that its business is inspection, not manufacturing, when it describes Scanner's business:

"Scanner invents, develops and markets vision inspection products that are used in the semiconductor industry for the inspection of integrated circuits." (Scanner Bates No. 3638).

69. Scanner now attempts to stretch reality and common sense to try to salvage its outlaw enterprise. A computer chip is "produced" before it can be inspected. What happens before and after the making of a computer chip does not make it. Inspection does not do anything to the chip. If the chip is good, it goes to market unchanged, exactly the same object as it was before the inspection. Its integrity as an article of manufacture is unchanged by the mere shining of light on it (inspection) to see if all the balls are co-planar. Inspection by light does not change the chip, physically or chemically.

70. No one may monopolize the name of a staple article of commerce, a "produced BGA", by asserting the Patent Act against anyone who wishes to call a produced BGA by that name, at such time as it wishes to do so. The Trademark Act expressly preserves such descriptive names for free public use. 15 U.S.C. §1052(e)(1). Yet that is what Scanner seeks to do with its new patent

claims to a "produced" BGA denominated as such.

71. Scanner seeks to confuse the Patent Office and the public into thinking that a process used after the making of a physical object is the same as making the physical object. It is not true. If it were, then where would patent infringement begin? And where would it stop? The public interest demands adherence to common sense regardless of Scanner's wish to maximize the scope of its patent claims by expanding them beyond reasonable limits. In the case at hand, the steps not covered by the patents (such as casting the plastic, laying down the circuit, cutting the die, attaching the balls, etc.) are the ones responsible for making the physical and chemical structure of the product. The inspection does nothing at all to change the physical or chemical properties of the product. It just detects physical properties.

72. Nor does ICOS (or its customers) infringe Scanner's patents under Section 271(g) of the Patent Act. Since Scanner's method by its terms is incapable of "producing" any product, its patent claims are not "product by process" claims under 271(g). They are mere "process" claims. As such, Scanner's claims are not infringed within the United States when the inspection process practiced by or for ICOS' customers happens outside of the United States. *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir.2005); *Bayer AG et al. v. Housey Pharmaceuticals, Inc.*, 340 F.3d at 1377 (Fed. Cir.2003).

73. Alternatively, even if Scanner's claims were to be interpreted as

really making a "product by process" (they do not), ICOS does not infringe them under Section 271(g)(1) since (in most cases) after foreign inspection with ICOS machines the BGAs are materially changed outside the United States and before the final integrated products are imported into the United States.

74. ICOS makes inspection machines and may sell them to foreign computer chip makers and inspection services. They inspect the chips. Then, foreign assemblers assemble the circuit boards, changing the physical structure of the chips by melting the solder balls on the chips to attach the chips to the boards. At that point -- before the inspected package comes to the U.S. -- there is no longer a "ball grid array." The balls are destroyed, substantially changing the product. Then, the boards are sold to foreign electronics makers who put them into consumer products (e.g., cellphones). This all happens outside the United States. After those chips are thus substantially modified and integrated in the intended devices, the devices are exported to the United States. This chain of subsequent processes places ICOS and its customers beyond the reach of Section 271(g).

75. In its 2005 petitions to make special, Scanner represented to the Patent Office that all the claims of its '411 Patent (as part of a single invention) require use of a single camera (pp. 3-4). The same is true in the case of the '678 Patent (pp.3-4). ICOS does not use a single camera. Scanner sued NVIDIA on those patents in the Texas Action, but neither ICOS nor NVIDIA can infringe. Scanner's representations to the Patent Office estop it from asserting that any of its claims do not contain a limitation to a single camera (e.g., Claim 66 of the

'411 Patent). Scanner cavalierly does not care, because it knows that it takes money and time to weed through the prosecution history of its serial patents, and it hopes for customers to give in under pressure rather than expend the resources to hire attorneys to parse its file wrappers to figure out what the claims really mean.

76. Through its overreaching patent prosecution and enforcement strategy, Scanner attempts to assert its fraudulently-obtained patents over foreign activity that is not subject to the U.S. Patent Act, and domestic activity that is lawful. Scanner's baseless suits must be stopped before ICOS and its customers (and their customers) are irreparably harmed.

Urgent Need for Relief

77. The egregious nature of Scanner's misleading prosecution conduct demands that Scanner be preliminarily and permanently enjoined from enforcing any of its fraudulently-obtained invalid patents against ICOS, its customers (and their customers). Due to its unclean hands, Scanner is disabled from pursuing ICOS, its customer, their customers, or any member of the trade or public on any portion of its tainted patent family that has not yet been ruled invalid already.

COUNT I

(NON-INFRINGEMENT)

78. ICOS repeats, realleges and incorporates by reference paragraphs 1 through 77 above as though fully set forth herein.

79. There is an ongoing case and controversy between the parties pursuant to 28 U.S.C. §2201 since Scanner has already sued ICOS, and a customer of ICOS' customers, and has threatened to sue other third-party BGA end-users for patent infringement of Scanner patents.

80. ICOS systems do not fall within the scope of any Scanner patent claims. Hence, ICOS systems do not infringe, contribute to the infringement, or induce others to infringe any Scanner patents, under Section 271(g) of the Patent Act or otherwise.

81. This allegation is pleaded in the alternative and hypothetically: even were ICOS literally to infringe, which ICOS denies, the reverse doctrine of equivalents applies to negative any such infringement, due to substantial differences in the manner of operation of ICOS systems (including without limitation differences described above) compared to the Scanner Patents' teachings and claims.

82. To resolve the dispute between the parties, ICOS is entitled to a declaratory judgment of non-infringement under 28 U.S.C. §2201.

COUNT II

(INVALIDITY)

83. ICOS repeats, realleges and incorporates by reference paragraphs 1 through 82 above as though fully set forth herein.

84. There is an ongoing case and controversy between the parties pursuant to 28 U.S.C., §2201 since Scanner has already sued ICOS, and a customer of ICOS' customers, and has threatened to sue other third-party BGA end-users for patent infringement of Scanner patents.

85. The claims of the Scanner Patents are invalid under the Patent Act, including without limitation 35 U.S.C. §§101, 102, 103 and/or 112.

86. To resolve the dispute between the parties, ICOS is entitled to a declaratory judgment of invalidity under 28 U.S.C. §2201.

COUNT III

(UNENFORCEABILITY; UNCLEAN HANDS)

87. ICOS repeats, realleges and incorporates by reference paragraphs 1 through 86 above as though fully set forth herein.

88. There is an ongoing case and controversy between the parties pursuant to 28 U.S.C., §2201 since Scanner has already sued ICOS, and a customer of ICOS' customers, and has threatened to sue other third-party BGA end-users for patent infringement of Scanner patents.

89. The claims of the Scanner Patents that have not yet been ruled invalid already are unenforceable for inequitable conduct; and/or pursuant to the equitable doctrine of unclean hands.

90. To resolve the dispute between the parties, ICOS is entitled to a

declaratory judgment of unenforceability under 28 U.S.C. §2201.

COUNT V

(INTERFERENCE WITH BUSINESS RELATIONSHIPS
AND PROSPECTIVE ADVANTAGE)

91. ICOS repeats, realleges and incorporate by reference paragraphs 1-90 above as though fully set forth herein.

92. The acts of Scanner as aforesaid constitute unlawful interference by it with ICOS' business relationship with ICOS' customers and its downstream customers.

93. Moreover, any assertion by Scanner to the trade of claimed rights in Scanner's patents, as against ICOS, its customers (and/or its customers' customers), knowing the same to be invalid and not to be infringed by ICOS, its customers (and/or its customers' customers), would interfere with ICOS' business relationships with its customers and potential customers and unjustifiably impair ICOS' ability to market its products.

94. Any such acts by Scanner were and would be knowing, unjustified and willful, and thus an intentional tortious interference with ICOS' business relationships and prospective advantage giving rise to immediate and irreparable injury to ICOS. Such acts are likely to occur and recur, unless Scanner is preliminarily and permanently restrained by this Court. ICOS has no adequate remedy at law.

COUNT VI

(INJUNCTIVE RELIEF)

95. ICOS hereby repeats, realleges and incorporates by reference paragraphs 1 through 94 above as though fully set forth herein.

96. Scanner's conduct as aforesaid constitutes knowing and willful fraud on the Patent Office; Scanner's suits against ICOS and customers and downstream customers of ICOS systems are baseless; and Scanner has engaged in sham litigation by filing repetitive patent claims and attempting to enforce invalid, not infringed and/or unenforceable patents, for the purpose and with the specific intent of interfering with ICOS' and its customers and downstream customers' business, to force them to enter into licensing agreements with Scanner or drive them out of business.

97. To resolve the dispute between the parties, ICOS is entitled to injunctive relief under 15 U.S.C. §1116 enjoining Scanner (preliminarily and permanently) from asserting any of its patents in such manner.

WHEREFORE, ICOS prays that the Court:

- a. Order that Scanner, its officers, agents, servants, employees and attorneys, and all those persons in active concert or participation with any of them who receive actual notice by personal service or otherwise, be preliminarily and permanently enjoined from:

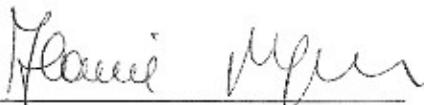
- i) interfering with or threatening to interfere with ICOS' business and the business of ICOS' successors and/or assigns, representatives, distributors, customers, end users of ICOS products and services, and any persons in active concert or participation with any of them; and
 - ii) instituting or prosecuting any suit or other legal or administrative proceeding (1) placing in issue the right of ICOS, and its successors and/or assigns, representatives, distributors, customers, end users of ICOS products and services, and any persons in active concert or participation with any of them to make, use, offer to sell, sell, or import any ICOS products and services; (2) or otherwise seeking any determination or ruling concerning validity, infringement or enforceability of the Scanner Patents (except before this Court).
- b. Declare that all of Scanner's patents (including without limitation, any continuations, continuations-in-part, extensions, reissues, divisions, and any patents, supplementary protection certificates and similar rights that are based on or derive priority therefrom) are non-infringed by ICOS, its successors or assigns, representatives, distributors, customers, end users of ICOS products and services, and any persons in active concert or participation with any of them;
- c. Declare that all of Scanner's patents that have not been ruled invalid already (including without limitation, any continuations, continuations-in-part, extensions, reissues, divisions, and any patents, supplementary protection

certificates and similar rights that are based on or derive priority therefrom) are invalid and unenforceable;

- d. Declare that ICOS does not owe any money to Scanner, whether as damages or attorney's fees or otherwise;
- e. Award ICOS compensatory, treble and/or other applicable enhanced, exemplary and/or punitive damages, in such amount as may be determined at trial;
- f. Award ICOS attorneys' fees, costs and interest as may be allowed by law; and
- g. Award ICOS such other and further relief as the Court may deem just and proper.

Respectfully submitted,

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and ICOS Vision Systems Inc.

Dated: New York, New York
June 20, 2008

United States Court of Appeals for the Federal Circuit

2007-1399

SCANNER TECHNOLOGIES CORPORATION,

Plaintiff-Appellant,

v.

ICOS VISION SYSTEMS CORPORATION N.V.,

Defendant-Appellee.

2008-1081

SCANNER TECHNOLOGIES CORPORATION,

Plaintiff-Appellant,

v.

ICOS VISION SYSTEMS CORPORATION N.V.,

Defendant-Appellee.

Kurt J. Niederluecke, Fredrikson & Byron, P.A., of Minneapolis, Minnesota, argued for plaintiff-appellant. With him on the brief were Darren B. Schwiebert, and Laura L. Myers. Of counsel on the brief for 2007-1399 was Vytas M. Rimas, Scanner Technologies Corporation, of Minneapolis, Minnesota.

Robert M. Kunstadt, R. Kunstadt, P.C., of New York, New York, argued for defendant-appellee. With him on the brief was Ilaria Maggioni. Of counsel on the brief was Bradford E. Kile, Kile, Goekjian, Reed & McManus PLLC, of Washington, DC.

Appealed from: United States District Court for the Southern District of New York

Judge Denny Chin



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SCANNER TECHNOLOGIES CORPORATION,

Plaintiff-Appellant,

v.

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2008-1081

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Plaintiff-Appellant,

v.

ICOS VISION SYSTEMS CORPORATION N.V.,

Defendant-Appellee.

Appeals from the United States District Court for the Southern District of New York
in case no. 00-CV-4992, Judge Denny Chin

DECIDED: June 19, 2008

Before MICHEL, Chief Judge, CLEVENGER, Senior Circuit Judge, and GAJARSA, Circuit Judge.

CLEVENGER, Senior Circuit Judge.

This is an appeal from the United States District Court for the Southern District of New York in a patent infringement action that Scanner Technologies Corp. ("Scanner") brought against ICOS Vision Systems Corp. ("ICOS") in July 2000. ICOS denied

infringement and counterclaimed seeking a declaratory judgment of noninfringement, invalidity, and unenforceability. After this court reviewed the district court's Markman ruling in a 2004 interlocutory appeal, Scanner Technologies Corp. v. ICOS Vision Systems Corp., N.V., 365 F.3d 1299, 1300 (Fed. Cir. 2004) ("Scanner I"), the district court, on remand, held a bench trial on infringement, validity and enforceability in March 2005. The district court rendered its findings of fact and conclusions of law in a May 22, 2007 opinion. Scanner Techs. Corp. v. Icos Vision Sys. Corp., N.V., 486 F. Supp. 2d 330 (S.D.N.Y. 2007) ("Scanner II"). The district court entered final judgment on June 1, 2007, finding the asserted patents unenforceable, invalid for obviousness, and not infringed. The final judgment also included a provision that rendered related patents, derived from the same common parent application, unenforceable. Scanner appeals the district court's final judgment. For the reasons stated below, we affirm in part, reverse in part, and vacate in part.

I

This case involves semiconductor technology and specifically processes to inspect electronic components, including ball array devices, ball grid arrays, chip scale packages, and bump on wafers (collectively "BGAs"). BGAs are mounted on circuit boards that can be found in various electronic devices, and are used to conduct electrical impulses in such devices. The BGAs are comprised of an array of solder balls on a plane or substrate that conduct electrical impulses. As noted in this court's opinion in Scanner I, 365 F.3d at 1300, it is important that the solder balls are positioned precisely at the same height. "Even a minute difference in height could render the BGA, and thus the device, useless." Id.

Inventors Elwin M. Beaty ("Beaty") and David P. Mork ("Mork") discovered an apparatus and method for the three-dimensional inspection of ball array devices in mid-1997 and filed a patent application, U.S. Appl. No. 09/321,805, on the apparatus and method in January 1998. This January 1998 application is the "common parent application" to which the district court refers in its final judgment. From this common parent application, divisional applications that would become U.S. Patent Nos. 6,064,756 ("the '756 patent") and 6,064,757 ("the '757 patent") (collectively, "the patents in suit") were filed on May 28, 1999. Scanner displayed its first embodiment of the method and apparatus—an inspection module called the Ultra Vim Plus ("UV+")—in July 1998 at the Semicon West trade show in San Jose, California, and again in December 1998 at the Semicon Japan trade show.

ICOS representatives were attendees of these trade shows, and interacted with Scanner representatives on at least one occasion. Based at least in part on what ICOS observed at the trade shows, ICOS engaged Scanner in preliminary discussions regarding ICOS's interest in licensing or acquiring Scanner's BGA technology. ICOS eventually abandoned those pursuits in light of its own progress in developing a 3D BGA inspection system. In January 1999, ICOS announced its CyberSTEREO 3D BGA inspection product. The CyberSTEREO was an outgrowth and replacement of ICOS's older BGA inspection product, the ICOS Projector. The Projector had been on the market since 1996, and used a two-camera system with a structured light from a projector to inspect BGAs. Literature for the Projector system explained the use of a triangulation principle to perform three-dimensional measurements, including the use of Z calibration and bilinear interpolation. Whereas the Projector system measured the

absolute value of the top of the balls of the BGAs, the CyberSTEREO eliminated the projector and implemented a two-camera system to measure coplanarity, i.e., whether the balls were lying in the same plane. To accomplish this measurement, the CyberSTEREO measures a point inside the ball rather than the top of the ball.

By February 1999, Scanner learned that ICOS had launched the competing CyberSTEREO 3D BGA inspection product. In Scanner's view, ICOS's new product infringed the proposed claims of Scanner's patent applications. Consequently, while the applications were pending, Scanner submitted a petition to make special to the Commissioner of Patents and Trademarks at the United States Patent and Trademark Office ("PTO"). The purpose of such a petition is to seek accelerated review of the pending application.¹ In its petition, Scanner's patent attorney, George A. Leone ("Leone") submitted that the application was entitled to special handling status because of actual infringement. The petition contained all the prerequisites that the PTO requires, including Leone's statement that a "rigid comparison" of the alleged infringing method with the claims of the application had been made, and that in Leone's opinion,

¹ Petitions to make special are governed by Section 708.02 of the Manual of Patent Examining Procedure (MPEP), which provides that an application may be made special because of actual, but not prospective, infringement upon payment of the fee and the filing of a petition accompanied by a statement by the applicant, assignee, or an attorney/agent alleging the following:

- (A) That there is an infringing device or product actually on the market or method in use;
- (B) That a rigid comparison of the alleged infringing device, product, or method with the claims of the application has been made, and that, in his or her opinion, some of the claims are unquestionably infringed; and
- (C) That he or she has made or caused to be made a careful and thorough search of the prior art or has a good knowledge of the pertinent prior art.

Manual of Patent Examining Procedure § 708.02 (8th ed. 2006).

some of the claims are "unquestionably infringed." The petition was accompanied by a statement from the applicant and assignee, Beaty, describing the claimed invention, his role in the invention, certain interactions between Scanner and ICOS, and ICOS's competing system. The PTO granted Scanner's petition and advanced the application process. Literature describing the Projector system was considered by the PTO Examiner as prior art to the patents in suit, and the claims were considered patentable over the system as described in the literature.

The PTO issued the patents in suit on May 16, 2000. The '756 patent is entitled "Apparatus for three dimensional inspection of electronic components." As the patent's Abstract provides, the '756 patent covers a three dimensional inspection apparatus for ball array devices, where the ball array device is positioned in a fixed optical system. An illumination apparatus is positioned for illuminating the ball array device. A first camera is disposed in a fixed focus position relative to the ball array device for taking a first image of the ball array device to obtain a characteristic circular doughnut shape image from a ball. A second camera is disposed in a fixed focus position relative to the ball array device for taking a second image of the ball array device to obtain a side view image of the ball. A processor applies triangulation calculations on related measurements of the first image and the second image to calculate a three dimensional position of the ball with reference to a pre-calculated calibration plane. '756 patent, Abstract. Claim 1 of the '756 patent reads:

1. A three dimensional inspection apparatus for ball array devices having a plurality of balls, wherein the ball array device is positioned in a fixed optical system, the apparatus comprising:
 - a) an illumination apparatus positioned for illuminating the ball array device;

- b) a first camera disposed in a fixed focus position relative to the ball array device for taking a first image of the ball array device to obtain a characteristic circular doughnut shape image from at least one ball;
- c) a second camera disposed in a fixed focus position relative to the ball array device for taking a second image of the ball array device to obtain a side view image of the at least one ball; and
- d) a processor, coupled to receive the first image and the second image, that applies triangulation calculations on related measurements of the first image and the second image to calculate a three dimensional position of the at least one ball with reference to a pre-calculated calibration plane.

'756 patent, col. 18, ll. 34-53.

The '757 patent is entitled "Process for three dimensional inspection of electronic components." Corresponding to the '756 patented apparatus, the '757 patent covers a three dimensional inspection process for ball array devices positioned in a fixed optical system. In the claimed process of the '757 patent, the ball array device is illuminated and a first image of the ball array device is taken with a first camera disposed in a fixed focus position relative to the ball array device to obtain a characteristic circular doughnut shape image from a ball. A second image of the ball array device is taken with a second camera disposed in a fixed focus position relative to the ball array device to obtain a side view image of the ball. The first image and the second image are processed using a triangulation method to calculate a three dimensional position of the ball with reference to a pre-calculated calibration plane. '757 patent, Abstract.

Mork assigned his rights in the patents to Beaty—the CEO and majority shareholder of Scanner. Scanner holds an exclusive license to the patents in suit from Beaty, and the license includes the right to sue for infringement.

II

Scanner filed suit against ICOS on July 7, 2000, accusing ICOS's CyberSTEREO ball grid array inspection system of infringing the patents in suit. ICOS filed an answer denying the substantive allegations contained in the complaint. In its counterclaim, ICOS sought damages for unfair competition under the Lanham Act, common law unfair competition and trade disparagement, and tortious interference with advantageous business relations. ICOS also asked the court to declare Scanner's '756 and '757 patents invalid, unenforceable, and not infringed by ICOS. The parties agreed that the case would rise and fall on claim 1 of the '756 patent.

In an interlocutory appeal in 2004, Scanner challenged the methodology employed by the district court in construing the terms "an illumination apparatus" and "illuminating," and its substantive constructions of those terms. Scanner I, 365 F.3d at 1302. Scanner further challenged the district court's entry of summary judgment of non-infringement as based upon erroneous claim constructions. Id. In that case, this court agreed with Scanner that the district court erred in limiting "an illumination apparatus," and thus "illuminating," to an apparatus containing only a single illumination source. Id. at 1304. We held that "an illumination apparatus" is properly construed to encompass one or more illumination sources because the patentee had not evinced a clear intent to limit the article "an" to a single illumination source in either the claims or specification of the '756 patent. Id. Because the district court's entry of summary judgment of non-infringement was premised upon an incorrect construction of these terms, we vacated the judgment and remanded the case for further proceedings. Id. at 1306.

III

The case is now back before us following proceedings on remand in which the district court conducted a bench trial on the issues of infringement, validity, and enforceability.

A

Regarding inequitable conduct, the district court took issue with Leone's statement in the petition that he had made a "rigid comparison" of the CyberSTEREO system with the claims of the application, when the district court found, based on Leone's deposition testimony, that Leone "had not actually seen the ICOS device, as suggested." Scanner II, 486 F. Supp. 2d at 346. Leone's statements were not the only basis for the court's finding of inequitable conduct; the district court also found Beaty's statements in connection with the petition to make special to be problematic. The district court stated:

The UV+ was not on "open display" at the December 1998 trade show, at least not in the sense that Beaty tried to convey, for the system was in a black sealed box and an inspection of the module would not have revealed how the calculations were performed. DeProft [ICOS's Vice President] did not visit the Scanner booth at the July 1998 trade show, as Beaty stated. Contradicting what he wrote in his declaration, Beaty acknowledged at trial that he could not recall "anything specific" with respect to DeProft at that show. (Tr. 205). DeProft did not take "copious notes" or make any diagrams or drawings of the UV+ at the Japan trade show, as Beaty alleged as well.

Scanner II, 486 F. Supp. 2d at 346-347.

The district court considered the trial testimony of Beaty and DeProft, and concluded that Beaty's statements² in the declaration accompanying the petition to

² As the district court observed, Beaty's statement alleged that: the UV+ was on "open display" at the December 1998 trade show; DeProft approached Beaty for

make special suggested, and "were intended to mislead the PTO into believing," that ICOS copied the Scanner device, when the court found that ICOS developed the CyberSTEREO from the Projector system on its own. Id. at 347.

B

With regard to obviousness, the district court enumerated what it accepted to be well known principles in the prior art, including illumination in camera-based systems, two-camera systems where one camera is disposed at an angle to another, use of triangulation calculations to make measurements, triangulation calculations utilized with a two-camera system, use of stereo vision, and the idea of calibrating cameras. In view of those prior art principles, the district court concluded that ICOS's Projector system rendered Scanner's claims obvious.

The district court explained that the Projector system contained a first and second camera, an illumination apparatus, and a processor coupled to the cameras to receive first and second images to find the three-dimensional position of at least one ball. Scanner II, 486 F. Supp. 2d at 347. The court further concluded that one skilled in the art would have found it obvious at the time of the Scanner invention to employ the elements of the claims to alter the Projector system by removing the structured light source and employing triangulation calculations to locate the three-dimensional position

a two-hour private meeting; DeProft had previously inspected the UV+ at the July 1998 trade show in California; DeProft "took copious notes, diagrams, and drawings" of the UV+ at the Japan trade show; other ICOS personnel "also rigorously studied the [Scanner] display" at the Japan trade show; according to a former ICOS employee, after the July 1998 trade show it was suggested at an ICOS meeting that a third party buy the UV+ so that ICOS could see how it worked; ICOS contacted Scanner in December 1998 about obtaining rights to the UV+; and on January 26, 1999, ICOS announced the introduction of its CyberSTEREO system, which Beaty described as being "substantially identical" to the UV+.

of balls. Id. Based on these findings, the district court entered final judgment that the claims of both patents in suit were invalid.

C

On infringement, the only element of Claim 1 of the '756 patent in dispute was element d, as the parties agreed that the ICOS products comprise the preamble and elements a, b, and c. The district court observed that element d requires the use of triangulation calculations while the ICOS products rely on bilinear interpolation, which is the process of transferring the location of a ball from the 3D camera into the 2D camera and then computing a translation offset. Bilinear interpolation involves the measurement of the position of a ball in the 3D camera, the relocation of that position in the 2D or top camera using a camera-to-camera transfer process, and a comparison of that position to the location of the ball as observed in the 2D camera. The difference in the two positions is proportional to the height of the ball. As the district court observed, bilinear interpolation is different from triangulation, as it is an algebraic operation rather than a trigonometric one. In its use of bilinear interpolation, the ICOS system does not solve for unknown properties of a triangle and does not measure the height of the balls.

Element d of claim 1 also requires the calculation of a three-dimensional position of at least one ball with reference to a pre-calculated calibration plane. The district court understood the ICOS system to locate a reference point inside the ball as opposed to locating the X, Y, and Z values for the top of a ball. Because the ICOS products rely on coplanarity—the relative variations of each ball from a plane, the district court found that ICOS's systems did not need to measure the height of the ball nor do they make calculations with reference to a pre-calculated calibration plane. Absent the application

of triangulation calculations on related measurements of the first image and the second image to calculate a three dimensional position with reference to a pre-calculated calibration plane, the district court concluded that the accused device did not infringe claim 1 of the '756 patent.

IV

A

Scanner contends that the district court abused its discretion by ruling that the patents in suit are unenforceable due to inequitable conduct because the court "misapplied the law relating to materiality by incorrectly concluding that any statement in a petition to make special is per se material if the petition is granted."

Scanner argues that the statements adjudged to be misrepresentations were neither material to patentability nor to the grant of expedited review. Further, Scanner submits that neither Beaty nor Leone made false or misleading statements. Scanner contends that the record and the district court's opinion are devoid of any evidence and discussion of the required intent to deceive necessary to sustain a charge of inequitable conduct.

The ultimate question of inequitable conduct is committed to the discretion of the district court and we review the court's determination that the patentee engaged in inequitable conduct for abuse of discretion. Modine Mfg. Co. v. Allen Group, Inc., 917 F.2d 538, 541 (Fed. Cir. 1990), cert. denied, 500 U.S. 918 (1991). An abuse of discretion occurs when (1) the court's decision is clearly unreasonable, arbitrary, or fanciful, (2) the court's decision is based on an erroneous construction of the law, (3) the court's factual findings are clearly erroneous, or (4) the record contains no evidence

issued no findings of fact capable of supporting its conclusion. In support of its argument, Scanner points to the fact that the Projector system was the only prior art the court considered in invalidating the patents, and that the system was before the PTO, which found the claims to be patentable over the Projector system. Specifically, Scanner argues that the district court did not find that the prior art disclosed or suggested the limitations of claim 1 as they actually appear, which would have required a finding that the Projector system or the knowledge of those of skill in the art contained or suggested calculation of a three-dimensional position of a ball with reference to a pre-calculated calibration plane.

Scanner further argues that prior to its invention, "common sense dictated that a 3D calibration object, not a calibration plane, was needed to calibrate a 3D camera." Scanner then states that the "Projector taught that separate calibration devices were required to calibrate the two cameras and taught away from using an XY calibration reticle to calibrate the 3D camera." Scanner submits that the district court also did not find that the Projector system or the knowledge of those of skill in the art contained or suggested applying triangulation calculations on related measurements of the first image and the second image, obtained by the first and second cameras respectively, as is required by claim 1. Therefore, according to Scanner, "[t]he record contains no evidence that anything in the prior art or in the knowledge of one of skill in the art would have suggested implementing stereo triangulation calculations on related images in the Projector system."

ICOS responds that the district court found that the Projector system used "Z calibration," a finding Scanner acknowledged. ICOS submits that Z calibration is

calibration with reference to a Z plane. The trial testimony supports this contention. ICOS's expert, Dr. Mundy, was asked whether the two cameras in the Projector system were calibrated using a single artifact. Dr. Mundy replied, "Yes, they were." Trial Tr. at 758. When asked how, Dr. Mundy explained, "They had a flat glass, a plate, which they called a caliber, something like that But basically it is a plane which they put under the field of view of both cameras and then carry out the calibration process that I just illustrated in my slides and in my analysis of the code." Id. (emphasis added).

Further, ICOS points to Dr. Mundy's testimony as establishing that the use of two cameras in a stereo-vision arrangement was not new at the time of the alleged invention. Specifically, Dr. Mundy testified that ". . . the use of triangulation to determine information from the two cameras, the side 3D camera and the top camera, is something that's well known, or was well known at that time. And actually stereo measurement of Sphinx had been done by the computer vision community perhaps a decade earlier." Dr. Mundy was then asked, "Based on that, at least in your opinion, to one skilled in the art, the concept of using stereo vision would be obvious with the existence of a projector system?" He responded, "Well, it would have been obvious in any system that had two cameras, one at an angle with respect to the other." Trial Tr. at 756.

With respect to Scanner's point that the district court does not identify the relational aspect of claim 1, we agree that one of ordinary skill in the art would understand that the relationship characteristic of triangulation is an ancient Greek discovery, and there can be no triangulation of mere unrelated measurements. As the Supreme Court reaffirmed in KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741

(2007), an obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." We recognize that claim 1 requires triangulation of measurements using a first image from the first camera and a second image from the second camera whereas the Projector system performs triangulation calculations on related measurements from images of only one camera. However, the trial testimony shows that the relatively small logical gap between the prior art and the claim in this case is closed by a person of ordinary skill in the art "pursu[ing] known options within his or her technical grasp." See also In Re Translogic Tech., Inc., 504 F.3d 1249, 1262 (Fed. Cir. 2007).

Scanner's arguments regarding obviousness appear to take more issue with the crisp nature of the district court's opinion rather than the merits of the obviousness determination, which are supported by the trial testimony of Dr. Mundy. See Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1540 (Fed. Cir. 1983) ("We sit to review judgments, not opinions."). We agree with the district court's judgment and therefore affirm its conclusion that claim 1 of the '756 patent would have been obvious in light of the prior art and the knowledge of one skilled in the art.

D

Scanner argues that the district court erred in holding that the CyberSTEREO does not infringe any claim of the patents in suit. Infringement is a question of fact that, after a bench trial, we review for clear error. Alza Corp. v. Mylan Labs., Inc., 464 F.3d 1286, 1289 (Fed. Cir. 2006). Under the clear error standard, a reversal is permitted

only when this court is left with a definite and firm conviction that the district court was in error. Id. (citing *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1164 (Fed. Cir. 2006).

According to Scanner, the district court applied a different and incorrect construction of the term "triangulation calculation" in its infringement analysis to conclude that the CyberSTEREO is not making or using triangulation calculations. However, the record does support the conclusion that ICOS does not practice "triangulation" as the patents in suit use that term because ICOS relies on bilinear interpolation for measurement.

Scanner also argues that the district court applied an incorrect construction of the claim term "pre-calculated calibration plane" since the district court arrived at the conclusion that the CyberSTEREO determines the X and Y coordinates on the Z=0 world plane. The district court correctly applied the claim construction and properly determined that the coplanarity calculation in ICOS's system is different from the pre-calculated calibration plane in claim 1 of the '756 patent. Scanner identifies no basis for this court to disturb the district court's factual findings, most of which were based on crediting expert witness testimony. We therefore affirm the district court's judgment of noninfringement of claim 1.

E

Scanner also appeals the district court's ruling on the validity of unasserted claims of the patents in suit. Scanner further contends that the district court erred in concluding that no claim of either patent-in-suit is infringed based on its analysis of only claim 1 of the '756 patent.

Scanner first argues that the district court lacked jurisdiction to adjudicate the unasserted claims because no case or controversy existed to support subject matter jurisdiction. This argument is unpersuasive. ICOS responded to Scanner's lawsuit with a counterclaim that sought a declaratory judgment on the claims of the '756 and '757 patents. Def.'s Answer and Countercl. at 11 ("Count IV (Declaratory Judgment) . . . The '756 and '757 patents, and each of the claims thereof, are invalid and/or unenforceable for one or more of the reasons set forth in paragraphs (a) through (k) above."). Accordingly, the district court had subject matter jurisdiction to adjudicate claims that Scanner did not assert against ICOS.

Scanner also argues that the district court erred in ruling on the validity of claims as to which ICOS presented no evidence. ICOS responds that the case went to trial on claim 1 because the parties agreed to try the case on a representative claim upon which the entire case would stand or fall. ICOS cites to the parties' stipulation "that the case stands and falls on Claim 1 of the '756 Patent."

Scanner limits the import of the stipulation to claim construction. The record does not include the stipulation itself, only acknowledgement by both parties that the stipulation had been made. When asked at oral argument, neither party was aware of whether the stipulation was memorialized in writing or part of the record below.

An interpretation of the parties' pretrial stipulation, much like contract interpretation, is a legal issue that this court reviews de novo. Fuji Photo Film Co., Ltd. v. Jazz Photo Corp., 394 F.3d 1368, 1373 (Fed. Cir. 2005) (citing Kearns v. Chrysler Corp., 32 F.3d 1541, 1545 (Fed. Cir. 1994)). Despite the black letter law that a finding of invalidity of an independent claim does not determine the validity of claims

that depend from it, see 35 U.S.C. § 282 (1982), parties can stipulate to almost anything but jurisdiction. This court's decision in Shelcore, Inc. v. Durham Indus., Inc., 745 F.2d 621 (Fed. Cir. 1984), is instructive:

While the rule—that where the patentability of dependent claims is not argued separately from the independent claims from which they depend, the former stand or fall with the latter—has vitality prior to the issuance of a patent embodying those claims, that rule has no application in a district court proceeding to determine whether the claims of an issued patent are valid. While the above rule is not applicable as a rule of procedure in a district court, it has been applied on appeal from a district court judgment with respect to the claims of an issued patent as a matter of convenience. The presumption of validity does not guide our analysis on appeal. Rather, we review the findings and conclusions of a district court under the appropriate standards of review. That circumstance bears no relation, however, to the requirement at trial that a party challenging the validity of a claim, absent a pretrial agreement or stipulation, must submit evidence supporting a conclusion of invalidity of each claim the challenger seeks to destroy.

Id. at 624-25 (emphasis added). In this case, we have an unambiguously proposed finding of fact that stated simply "ICOS and Scanner have stipulated that the case stands and falls on Claim 1 of the '756 Patent," to which Scanner replied, "True." The pleadings represented that "the case" constituted allegations of infringement of both patents, and a declaratory judgment action seeking invalidity, noninfringement, and unenforceability of all the claims of the patent in suit. Scanner's response to ICOS's proposed finding of fact and conclusions of law provided no caveat to its unqualified agreement with the nature of the parties' stipulation. Finding no ambiguity in the parties' representation of the stipulation before the district court, we affirm the district court's judgment invalidating the claims of both patents in suit.

Notwithstanding its position regarding the stipulation as it relates to the validity of claims not tried before the district court, Scanner charges that the district court failed to

separately consider whether the CyberSTEREO performed "the triangulation method" disclosed in claims 24, 29, and 30 of the '756 patent and various asserted claims of the '757 patent. Even if the stipulation was not intended to be what it plainly represents—a representative claim on which the case rises or falls—the district court could not have erred in failing to consider infringement of Scanner's other claims in ruling those claims not infringed because Scanner failed to adduce facts to support a finding that ICOS infringed claims 24, 29, and 30 of the '756 patent. Accordingly, we affirm the district court's judgment of noninfringement.

V

For the reasons discussed above, we reverse the district court on its inequitable conduct finding, and its judgment that the related, unasserted patents are unenforceable. Consequently, we vacate the attorneys' fee award. We affirm the district court's judgment that claim 1 is invalid as it would have been obvious. We also affirm the district court's judgment invalidating all claims of the patents in suit given the stipulation between the parties that the case would be tried on a representative claim. We also affirm the district court's holding that the CyberSTEREO does not infringe any claim of the patents in suit generally, and the '756 patent specifically.

COSTS

Each party shall bear its own costs for this appeal.

AFFIRMED IN PART, REVERSED IN PART, AND VACATED IN PART.

upon which the court rationally could have based its decision. Nilssen v. Osram Sylvania, Inc., 504 F.3d 1223, 1229 (Fed. Cir. 2007).

In order to establish inequitable conduct, the party challenging the patent is required to establish by clear and convincing evidence that the patent applicant "(1) either made an affirmative misrepresentation of material fact, failed to disclose material information, or submitted false material information, and (2) intended to deceive the U.S. Patent and Trademark Office." Symantec Corp. v. Computer Assoc. Int'l, Inc., 522 F.3d 1279, 1296 (Fed. Cir. 2008) (quoting Cargill, Inc. v. Canbra Foods, Ltd., 476 F.3d 1359, 1363 (Fed. Cir. 2007)). Both intent and materiality are questions of fact, and must be proven by clear and convincing evidence. Young v. Lumenis, Inc., 492 F.3d 1336, 1344 (Fed. Cir. 2007). We review a district court's findings on the threshold issues of materiality and intent for clear error. Pfizer, Inc. v. Teva Pharmas. USA, Inc., 518 F.3d 1353, 1366 (Fed. Cir. 2008). Under the clear error standard, the court's findings will not be overturned in the absence of a "definite and firm conviction" that a mistake has been made. Id. "Once threshold findings of materiality and intent are established, the district court must weigh them to determine whether the equities warrant a conclusion that inequitable conduct occurred." Flex-Rest, LLC v. Steelcase, Inc., 455 F.3d 1351, 1363 (Fed. Cir. 2006) (quoting Purdue Pharma, 438 F.3d at 1128).

Scanner argues that the district court erred in failing to assess materiality to patentability, and instead applied what it considers broad dicta in this court's decision in General Electro Music Corp. v. Samick Music Corp., 19 F.3d 1405, 1411 (Fed. Cir. 1994). In General Electro, we stated "as a matter of law that a false statement in a Petition to Make Special is material if . . . it succeeds in prompting expedited

consideration of the application." *Id.* at 1411. Scanner argues that in cases involving inequitable conduct since General Electro, the Federal Circuit has emphasized that a misrepresentation or omission must be material to patentability to support a charge of inequitable conduct.

It is true that many of our cases, before and after General Electro, examine materiality in the context of whether the alleged inequitable conduct bore directly on patentability of the claims in suit. That fact does not undercut the continuing force of the test for materiality in the setting of a petition to make special, or in other settings where an alleged misrepresentation to the Patent Office resulted in some action other than issuance of a patent. For example, this court affirmed a district court's decision finding that all of the patents in suit were unenforceable due to inequitable conduct for improperly claiming small entity status. Nilssen v. Osram Sylvania, Inc., 504 F.3d 1223, 1231 (Fed. Cir. 2007) (stating that "it is not beyond the authority of a district court to hold a patent unenforceable for inequitable conduct in misrepresenting one's status as justifying small entity maintenance payments"). Nilssen relied on Ulead Systems, Inc. v. Lex Computer & Management Corp., 351 F.3d 1139 (Fed. Cir. 2003). In Ulead, this court stated:

Historically issues of unenforceability have arisen in cases involving inequitable conduct occurring in the prosecution of patents. But, we see no reason why the doctrine should not extend into other contexts, like the present one, where the allegation is that inequitable conduct has occurred after the patent has issued and during the course of establishing and paying the appropriate maintenance fee. In this context, it is equally important that the PTO receive accurate information from those who practice before it.

Id. at 1144 (internal citations omitted). Given the precedent cited above, we must reject Scanner's view that inequitable conduct cannot be shown absent a misrepresentation

that bears on the patentability of the claims in the application. When the setting involves a petition to make special, as is the case here, we reaffirm that a false statement that succeeds in expediting the application is, as a matter of law, material for purposes of assessing the issue of inequitable conduct.³

In this setting, the first question to address is whether the statements in question are false. If not, materiality is lacking and there is no need to consider the intent prong of inequitable conduct. Scanner argues that the district court failed to take the statements in Scanner's application to make special at face value in assessing their veracity, and instead drew unwarranted inferences from the statements, and deemed such inferences untrue.

In Akron Polymer Container Corp. v. Exxel Container, Inc., 148 F.3d 1380 (Fed. Cir. 1998), we reviewed a holding of inequitable conduct that was based on a patentee's failure to disclose codependency of related applications to one examiner when the other examiner had been apprised. The district court had found that "only inferences of deceitful intent can be drawn from the joint prosecution of both applications by the same attorney." Id. at 1382. In that case, we found clear error because the district court failed to give due weight to evidence of good faith that would call for inferences contrary to a finding of deceit.

The rule of Akron Polymer is as clear as it is necessary. Whenever evidence proffered to show either materiality or intent is susceptible of multiple reasonable

³ We note that not all false statements or misrepresentations contained in a petition to make special are necessarily material even if the applicant succeeded in receiving expedited treatment for his or her application. Rather, in evaluating whether a false statement or misrepresentation in a petition to make special is material, a court

inferences, a district court clearly errs in overlooking one inference in favor of another equally reasonable inference. All reasonable inferences must be drawn from the evidence, and a judgment then rendered on the evidence as informed by the range of reasonable inferences.⁴ Where the rule is breached, no inequitable conduct may be found. The rule is necessary, for without it findings of inequitable conduct, with the punishment of unenforceability of the entire patent, could wrongly stand.

In this case, a full review of the record shows that the district court failed to draw all reasonable inferences on the factual findings relied upon by the district court to show materiality. We will consider those findings in turn.

1

The district court first addressed Leone's statement that he made a "rigid comparison" of the CyberSTEREO "system" with the claims of the application. The court inferred that this statement "suggested" that Leone had actually seen the device, when in fact, he had not. Hence, the district court deemed Leone to have made a false statement to the PTO.

While it is not unreasonable to infer or expect that a rigid comparison could call for a physical inspection, a contrary inference of intended compliance with the PTO's regulation can just as easily be drawn. The petition was accompanied with claims charts that referenced the specific source for Leone's beliefs as to each claimed element. Most of Leone's citations were to ICOS's CyberSTEREO product literature—

must determine whether the false statement was likely a but-for cause of the grant of the petition. If not, a threshold level of materiality has not been established.

⁴ Of course, a district court need not make explicit findings as to the range of reasonable inferences in every case, but must do so only where it draws an inference from a statement that is also subject to an equally plausible contrary inference.

also submitted to the PTO as Exhibit C to the petition. Ordinary dictionary definitions⁵ of "rigid" do not connote that the term is synonymous to a physical inspection.

Moreover, a physical inspection should not be an implied requirement for use of the phrase "rigid comparison" in a petition to make special in that, depending on the technology, and whether the claims are directed to an apparatus or a method, a physical inspection may not provide any more information than what can be ascertained from review of product literature. In some cases, a review of source code may be the only way to make a comparison of an accused device to proposed patent claims, which cannot be accomplished by physical observation of a "black box" enclosing the hardware that stores the application generated by such source code. The district court seemed to recognize as much when, in criticizing Beaty's use of the term "open display" to describe Scanner's system at a trade show, the court stated "the system was in a black sealed box and an inspection of the module would not have revealed how the calculations were performed." Scanner II, 486 F. Supp. 2d at 347.

Furthermore, the district court did not credit the fact that the "rigid comparison" words are not of Leone's creation. The PTO's rules for the contents of a petition to make special require recitation of those words. In sum, the district court's inference that Leone misleadingly suggested he saw the ICOS device, when weighed against a equally reasonable inference of good faith that the plain words of his statement and

⁵ See, e.g., Merriam-Webster's Online Dictionary (defining "rigid" as 1a: deficient in or devoid of flexibility <rigid price controls> <a rigid bar of metal>; b: appearing stiff and unyielding <his face rigid with pain>; 2 a: inflexibly set in opinion; b: strictly observed <adheres to a rigid schedule>; 3: firmly inflexible rather than lax or indulgent <a rigid disciplinarian>; 4: precise and accurate in procedure <rigid control of the manufacturing process>; 5 of an airship : having the outer shape maintained by a fixed framework).

supporting material engenders, does not support the conclusion that the attorney's statement is misleading or false under the clear and convincing evidentiary standard.

The district court also found that the UV+ was not on "open display" at the December 1998 trade show, "at least not in the sense that Beaty tried to convey." Scanner II, 486 F. Supp. 2d at 339. The court apparently inferred from Beaty's statement that Scanner implied that its display of the UV+ revealed how calculations were performed. As discussed above, however, even an unsealed and physically opened black box would not have necessarily revealed how Scanner performed those aspects of the process that utilized a processor. One can just as reasonably infer from Beaty's statement that by use of the phrase "open display," Scanner was communicating that the product could be viewed and demonstrated openly by visitors to the booth, as opposed to a private setting or one that might require non-disclosure agreements. Beaty testified that when he said Scanner's device was on "open display," such was to distinguish ICOS's closed method of display, which was to "keep their modules in locked cases where people could not get to them." Trial Tr. at 225, lines 5-6.

Beaty further testified, regarding the open display, that "[w]e had ours completely open so people could move around it and see it and observe it." Id. at 225, lines 7-8. In light of the requirement that inequitable conduct be found by clear and convincing evidence, the district court erred when it adopted an unfavorable inference regarding "open display," over an equally reasonable favorable inference.

As a further example of a false statement to the PTO by Beaty, the district court found that DeProft did not visit the Scanner booth at the July 1998 trade show, as the district court held that Beaty had suggested. On this issue, Beaty testified that he had no specific recollection of which ICOS personnel visited the Scanner booth, but he affirmed his honest belief that DeProft had visited the booth. DeProft testified that he absolutely recalled attending the July trade show. He could not recall speaking with Beaty or anyone else representing Scanner at the July show. When asked if he had "any memory of seeing anything or learning of anything about Scanner at that trade show in July of 1998," he replied "No. I do not. In fact, I'm not sure whether Scanner had the booth there or had a system on display there. I just don't—I cannot recall that." Although DeProft was sure he attended the July show, he was unsure whether or not he visited the Scanner booth.

The testimony before the district court on the issue of whether DeProft visited the Scanner booth at the July trade show is susceptible of at least two possibilities: either DeProft did visit the booth or he did not. The memory of both witnesses was at best vague.⁶ Since it is uncontested that several ICOS employees visited the trade show, whether DeProft did or did not seems inconsequential. But in any event, as with the alleged false statements examined above, here too the testimony is not one-sided. The district court chose to infer from DeProft's testimony that he had not visited the booth.

⁶ An email sent shortly after the show from one ICOS employee to other ICOS employees, including DeProft, who did attend that show, stated that "[at] SemiCon West we all noticed a potential 3D BGA competitor, Scanner Technologies." This statement by an ICOS employee attributes to DeProft, as well as other ICOS employees, at least some awareness of Scanner's presence at the trade show.

But given the vague nature of the testimony, it would have been equally reasonable to infer that he had in fact visited it. In the face of the clear and convincing evidence standard, the district court clearly erred in favoring DeProft's vague memory over Beaty's.

The district court also concluded, as a matter of fact, that DeProft did not take "copious notes" or make any diagrams or drawings of the UV+ at the Japan trade show, as Beaty stated in his declaration. The district court credited DeProft's testimony over Beaty's in this regard. The Supreme Court has instructed that, "[W]hen a trial judge's finding is based on his decision to credit the testimony of one of two or more witnesses, each of whom has told a coherent and facially plausible story that is not contradicted by extrinsic evidence, that finding, if not internally inconsistent, can virtually never be clear error." Honeywell Int'l, Inc. v. Hamilton Sundstrand Corp., 523 F.3d 1304, 1314 (Fed. Cir. 2008) (quoting Anderson v. City of Bessemer City, 470 U.S. 564, 575 (1985) (emphasis added)). As Scanner points out, there is some inconsistency in the district court's assessment of the conflicting testimony because DeProft was forced to acknowledge on cross-examination that he had taken some notes—at least enough to have commented about Scanner's system in ICOS's internal correspondence. Thus, the falsity or misleading nature of Beaty's statements and corresponding trial testimony comes down to whether the notes taken by DeProft were indeed "copious." What constitutes "copious" note-taking is a relative determination, from which subjective inferences, both favorable and unfavorable, can be deduced. To the extent that the district court found that Beaty made a false statement based on an unfavorable

inference presumed from the adjective he used to describe the amount of notes that were taken, the district court plainly erred. We fail to see how such an inference constitutes the clear and convincing evidence necessary to support a finding of inequitable conduct.

Taking Beaty's statements, analyzed above, as a whole, the district court held that those statements "were intended to mislead the PTO into believing that ICOS had copied the Scanner invention based on what it saw at the trade shows." Scanner II, 486 F. Supp. 2d at 346. When the individual facts are properly assessed, with all reasonable inferences being drawn, there is no clear and convincing evidence that Scanner told the PTO that ICOS had copied its invention. To be sure, Beaty's declaration stated that he believed that ICOS's product met the limitations of the claims in his application. But such a belief leaves room for nothing more than the bare assertion of infringement. The limitations of the claims can be met by slavish copying, or equally met by independent development of the accused products. The record, when properly analyzed, reveals Scanner telling the PTO that it believed ICOS to infringe. Under the clear error standard, Scanner cannot be held to have told the PTO that ICOS came by infringement by way of copying.

When the record evidence in this case on the issue of whether Scanner made false statements to the PTO in its petition to make special is measured by the rule of Akron Polymer, the grounds supporting the district court's ultimate finding of materiality dissolves. Because we hold that the district court clearly erred in its finding of materiality, the issue of intent to deceive the PTO is moot. Consequently, we reverse

the district court's determination that the patents in suit are unenforceable for inequitable conduct.⁷

B

Scanner contends that the district court abused its discretion in awarding attorneys' fees and costs to ICOS because the court based its finding of an exceptional case on an erroneous finding of inequitable conduct. We agree.

Whether a case is exceptional under section 285 is a factual question reviewed for clear error. Cybor Corp. v. FAS Techs., 138 F.3d 1448, 1460 (Fed. Cir. 1998) (en banc). The district court's decision to award attorney fees after finding a case exceptional is reviewed for abuse of discretion. Id. As discussed above, the district court clearly erred in finding that Scanner submitted false material statements to the PTO. Because the district court's finding of inequitable conduct served as the essential foundation of its finding that this case was exceptional, the district court likewise erred in finding that this case was exceptional, and therefore abused its discretion in awarding attorney fees. See Molins PLC v. Textron, Inc., 48 F.3d 1172, 1186 (Fed. Cir. 1995).

C

We turn to the question of whether the district court correctly held that the claims in suit would have been obvious. Scanner argues that the district court erred by first, failing to consider the level of ordinary skill in the art and the evidence of objective indicia of nonobviousness, and second, concluding that claim 1 would have been

⁷ Scanner contends that the district court erred by declaring unenforceable numerous patents not in suit since it lacked jurisdiction and an evidentiary record to support such a ruling. Because we hold that the district court erred in holding the patents in suit unenforceable for inequitable conduct, we necessarily vacate the district court's judgment that the related patents not in suit are unenforceable.

obvious without making factual findings that could support a conclusion that the prior art disclosed or suggested the actual elements of claim 1.

Obviousness is a question of law based on underlying questions of fact. Daiichi Sankyo Co., Ltd. v. Apotex, Inc., 501 F.3d 1254, 1256 (Fed. Cir. 2007) (citing Winner Int'l Royalty Corp. v. Wang, 202 F.3d 1340, 1348 (Fed. Cir. 2000)). We therefore review the ultimate determination of obviousness by a district court de novo and the underlying factual inquiries for clear error. Id. The underlying factual determinations made by the district court that this court must review for clear error include (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) objective indicia of non-obviousness. Graham v. John Deere Co., 383 U.S. 1, 17 (1966).

Scanner's arguments regarding the level of ordinary skill in the art and evidence of objective indicia of nonobviousness ring hollow. We recognize that it is ICOS's burden to prove invalidity by clear and convincing evidence, and that that burden of proof never shifts to the patentee to prove validity. Pfizer, Inc. v. Apotex, Inc., 480 F.3d 1348, 1359 (Fed. Cir. 2007) (quoting Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1375 (Fed. Cir. 1986)). However, in this case, the record shows that ICOS adduced certain facts, which were unrebutted by Scanner and accepted by the district court as the fact finder. Pfizer, 480 F.3d at 1360 ("[O]nce a challenger has presented a prima facie case of invalidity, the patentee has the burden of going forward with rebuttal evidence.") (internal citations omitted); Cable Elec. Prods. Inc. v. Genmark, Inc., 770 F.2d 1015, 1022 (Fed. Cir. 1985) ("[I]f evidence is presented establishing a prima facie case of invalidity, the opponent of invalidity must come forward with

evidence to counter the *prima facie* challenge to the presumption of section 282."). The district court cannot be said to have erred by not discussing those unrebutted facts.

The district court has the responsibility to determine whether the challenger has met its burden by clear and convincing evidence by considering the totality of the evidence, including any rebuttal evidence presented by the patentee. Pfizer, Inc. v. Apotex, Inc., 480 F.3d at 1360 (quoting Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1534 (Fed. Cir. 1983)). The record shows that ICOS's expert, Dr. Mundy, testified to the level of ordinary skill in the art. Scanner points to no contrary evidence, and its brief does not even dispute the level of ordinary skill that Dr. Mundy described.

Further, the district court expressly considered the insinuation that ICOS copied, and explicitly rejected the idea. In criticizing the district court's failure to consider any other evidence introduced at trial demonstrating the existence of objective indicia of nonobviousness, Scanner cites in its brief to 1) press releases that caution the reader not to place undue reliance on forward-looking statements such as expected contributions of the new product, 2) an email referring to a non-specific press release, and 3) an excerpt from the trial testimony in which counsel for Scanner sought to admit exhibits into the record going to commercial success but declining to "have discussions to make it go more quickly." In point of fact, there simply was not much evidence of secondary indicia of obviousness for the court to consider and discuss. We therefore reject Scanner's argument that the district court erred by failing to consider the level of ordinary skill in the art and evidence of objective indicia of nonobviousness.

Scanner argues that the district court erred in concluding that the ICOS Projector system disclosed or suggested each limitation of claim 1 because the district court